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**From:** Coan, Sean [CoanSM@cdmsmith.com]  
**Sent:** 7/23/2018 9:20:50 PM  
**To:** Berry, David [Berry.David@epa.gov]; Lynn Woodbury [woodburyl@cdmsmith.com]; Sanchez, Brian [sanchez.brian@epa.gov]; Skipper, Sherry [Skipper.Sherry@epa.gov]  
**CC:** Cirian, Mike [Cirian.Mike@epa.gov]; Gunnar Emilsson [EmilssonGR@cdmsmith.com]  
**Subject:** Re: CFAC Alternate Soil Reference Area - Background SAP

3-4pm MDT works for me, Lynn. Thanks!

-Sean

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**From:** Berry, David <berry.david@epa.gov>  
**Sent:** Monday, July 23, 2018 12:13 PM  
**To:** Woodbury, Lynn; Sanchez, Brian; Skipper, Sherry  
**Cc:** Cirian, Mike; Coan, Sean; Emilsson, Gunnar  
**Subject:** RE: CFAC Alternate Soil Reference Area - Background SAP

Hi All  
I can do 1 to 2 or 3 to 4 tomorrow  
david

David L. Berry, Ph.D.  
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**From:** Woodbury, Lynn [mailto:woodburyl@cdmsmith.com]  
**Sent:** Monday, July 23, 2018 12:40 PM  
**To:** Sanchez, Brian <sanchez.brian@epa.gov>; Berry, David <Berry.David@epa.gov>; Skipper, Sherry <Skipper.Sherry@epa.gov>  
**Cc:** Cirian, Mike <Cirian.Mike@epa.gov>; Coan, Sean <CoanSM@cdmsmith.com>; Gunnar Emilsson <EmilssonGR@cdmsmith.com>  
**Subject:** RE: CFAC Alternate Soil Reference Area - Background SAP

All –  
Can we schedule a call tomorrow (Tues, July 24) to discuss the alternate background reference areas that Roux has proposed below? Sean and I have the following time windows open (all times are MT): 10-11am, 12-2pm, 3-4pm. Please let me know if you have availability during those times and I can send out a meeting invite.  
Thanks,  
Lynn

++++  
Lynn Woodbury | CDM Smith | 555 17th Street, Suite 500 | Denver, CO 80202 | direct: 303.383.2382 | fax: 303.308.3003 |  
[woodburyl@cdmsmith.com](mailto:woodburyl@cdmsmith.com)

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**From:** Laura Jensen <[ljensen@rouxinc.com](mailto:ljensen@rouxinc.com)>  
**Sent:** Wednesday, July 18, 2018 1:35 PM

**To:** Cirian, Mike <Cirian.Mike@epa.gov>

**Cc:** Emilsson, Gunnar <EmilssonGR@cdmsmith.com>; 'Sanchez, Brian' <sanchez.brian@epa.gov>; 'Berry, David' <Berry.David@epa.gov>; 'Dick Sloan' <rsloan@mt.gov>; 'cowen@mt.gov' <cowen@mt.gov>; 'John.Stroiazzi@glencore.ca' <John.Stroiazzi@glencore.ca>; Steve Wright - CFAC <swright@cfaluminum.com>; 'Skipper, Sherry' <Skipper.Sherry@epa.gov>; Woodbury, Lynn <woodburyl@cdmsmith.com>; Coan, Sean <CoanSM@cdmsmith.com>; Formanek, Erin <formanek@cdmsmith.com>; Andrew Baris <abaris@rouxinc.com>; Michael Ritorto <mritorto@rouxinc.com>

**Subject:** CFAC Alternate Soil Reference Area - Background SAP

Mr. Cirian,

On behalf of CFAC, Roux submitted additional responses to USEPA comments on the Background SAP on July 16, 2018, based on the discussions held on the July 10, 2018 conference call and as documented in the meeting minutes. As stated in the responses to comments for Page 10, Section 3.2, Soil Background Area #2; CFAC/Roux further evaluated alternate reference areas for the Fluvial Deposit and Riverwash soil type based on USEPA's recommendation. This evaluation was conducted to assess upgradient locations or further downgradient locations with similar soil types within the floodplain of the Flathead River, and to propose an alternate soil background reference area for Reference Area #2.

The attached figure presents three alternate reference areas proposed for Soil Background Reference Area #2. A summary of the three alternate reference areas is provided below:

Alternate Location #1 – Area northwest of Blankenship Bridge, National Forest Property

The Flathead County tax map lists this area as National Forest Land. This area is approximately 40 acres of land located northwest of the Blankenship Bridge, and is surrounded by the Flathead River to the east, private residential area to the north and west, and National Forest Land to the south. The area is located where the North Fork and the Middle Fork of the Flathead River conjoin, and is accessed by Blankenship Road in Columbia Falls. The location also appears undisturbed and includes both vegetated and wooded areas. Evaluation of this location based upon aerial photo review determined that there is no readily apparent evidence of industrial or commercial activities in this area, however, in the event that this location is selected, this will be confirmed with reconnaissance of the area. Based upon the prevailing wind direction shown in the previously submitted wind rose diagram, this location appears to be downwind of the Site (northeast); and the location is not located within the Flathead Valley. However, the location is greater than 5.5 miles from the former operational plant and on the opposite side of Teakettle Mountain, and is upstream of the Site as requested by USEPA.

Alternate Location #2 – Area west of Highway 2 East, Campground Property

The Flathead County tax map lists this area as private land owned by Xanterra Parks and Resorts Inc. This area is approximately 2 acres of land directly east of the Flathead River in Martin City, and is surrounded by a campground and Highway Route 2 East to the east, and commercial and residential property to the north and south. The location is greater than 3.5 miles east of the former operational plant and accessed from Highway Route 2 East. Although the location is adjacent to commercial activity, it appears undisturbed and includes a heavily wooded areas and a bank located adjacent to the river. Evaluation of this location based upon aerial photo review determined that there is no readily apparent evidence of industrial or commercial activities in this area, however, in the event that this location is selected, this will be confirmed with reconnaissance of the area. Roux understands that this location is not located within the valley, but is upstream of the Site as requested by USEPA.

Alternate Location #3 – Area downstream of Site, State of Montana Fish and Game Commission Property

The Flathead County tax map lists this area as State of Montana Fish and Game Commission land. This area is approximately 50 acres of land directly east of the Flathead River in Columbia Falls, and is surrounded by residential property to the east and north, and bounded by the river to the west and south. This location is accessed from Kokanee Bend Drive to the east and follows a boat ramp path from the main road. The location also appears relatively undisturbed with the exception of a boat ramp used to access the Flathead River, and includes mostly wooded areas and a bank located adjacent to the river. Evaluation of this location based upon aerial photo review determined that there is no readily apparent evidence of industrial or commercial activities in this area, however, in the event that this location is

selected, this will be confirmed with reconnaissance of the area. Although this location is downstream of the Site, it is approximately 5 miles southwest of the former operational plant and therefore has little potential to be Site-impacted.

The below table presents a summary of the surface soil types prevalent in the three alternate reference areas. As presented in the table, each location demonstrates similar surface soil types to the associated onsite soil fluvial deposit and riverwash soil type:

Reference Area	NRCS Soil Types and Descriptions (FIGURE 4)				
	Detailed Soil Code	Description	Landform	Parent Material	Typical Profile
Alternate Reference Area #1	10-3	Aquepts, stream bottoms	Flood plains	Alluvium	0 to 7 inches: gravelly loam 7 to 18 inches: very gravelly sandy loam 18 to 60 inches: extremely gravelly sand
Alternate Reference Area #2	10-2	Fluvents, stream bottoms	Flood plains	Alluvium	29 to 60 inches: very gravelly loamy sand
Alternate Reference Area #3	Ba	Banks loamy fine sand, 0 to 4 percent slopes	Flood plains	Sandy alluvium	0 to 3 inches: loamy fine sand 3 to 60 inches: loamy fine sand
	Rc	Riverwash	Flood plains	Flooded and ponded soils	Not available

Based upon the outcome of the July 10, 2018 conference call and USEPA's desire for an upstream reference area, Roux recommends the selection of Alternate Location #1 (area northwest of Blankenship Bridge) for background soil sampling. As previously stated, it is understood that the location is downwind of the prevailing wind direction and outside of the Flathead Valley, but the location is distant from the Site (5.5 miles), appears undisturbed, and surrounded by only residential and National Forest Land; and therefore has little potential to be affected by historic onsite operations or surrounding anthropogenic sources. This location is also the most viable option in terms of physical and administrative access since it is located on National Forest Land.

Based upon the above, CFAC/Roux propose to select Alternate Location #1 to replace Soil Background Reference Area #2. Please let us know if you concur with the above described approach and please let us know if you have any questions.

**Laura Jensen, P.G. – NY | Project Hydrogeologist**

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